

TITLE OF INVENTION

Tape Dispenser/Package

BACKGROUND OF THE INVENTION

This invention relates to an improvement in an apparatus for dispensing a tape, i.e., ribbon, web or string, generally referred to herein as "tape", when the tape is being unwound at a laminating machine such as a corrugating machine or press. One aspect of the present invention is the unwinding of a roll of tape without having to individually unpack each roll or manipulate each roll of tape individually.

Reinforcing or Tear tapes have been used for many years in modern packaging as an aid to maintain structural integrity or as an easy open feature in boxes, packages and/or containers. The commercially available tape dispenser used at corrugating or laminating machine have an important limitation. All spools or rolls are supplied in individually packaged boxes, where each roll has to be unpacked, lifted and installed on a tape dispenser machine located near the corrugating or laminating machine. Since each roll has to be manually lifted and manipulated by the operators of the laminating or corrugating machine, each roll cannot weight more than 35 pounds to limit the dangers of injuries to the operators. This fact brings another important drawback. With a spool or roll weight this small, only a very limited amount of lineal footage of tape can be wound on these rolls. With the laminating or corrugating machines going faster over the years, an important need for splicing these rolls arose, since these processes cannot be stopped as they need to have a constant supply of tape. In this industry the footage of these tape rolls are usually between 10,000 and 30,000 feet. Since multiple tapes are used in these packaging making processes, we often see a splicing rate for tape roll of 1 roll every 5 to 8 minutes. This means that an operator has to unpack a roll, lift it, install it on the dispenser and prepare the splicing mechanism every 5 to 8 minutes.

The literature is abundant with such tape dispensers and splicing systems, and they all have in common the limitation to roll size and weight and the necessity for the operator to manually handle these rolls. In more details, we can see U.S. Patents # 4,917,327 and # 5,029,768 where we clearly see the general parameters of the tape dispenser and the need for tension control and a splicing mechanism. In U.S. Patents # 5,775,629 and #6,325,324 we also see different splicing techniques that can be used on tape dispensers.

The use of a package that dispense tape exists in other industry than the corrugated board reinforcement or easy open feature for containers. For example, in the pressure sensitive adhesive packaging tape we can see many patents on this subject: U.S. Patents # 4,372,472; # 4,453,634; # 4,676,446; # 4,998,655 and # 5,071,051 are all patents on

this subject. But all these patents, even if they cover the concept of package and dispenser, are all related to handheld dispenser of small rolls of pressure sensitive packaging tape and none use the concept of packaging/dispenser for the purpose of reducing roll manipulations and thus the increasing of tape roll footage.

BRIEF SUMMARY OF THE INVENTION

The present invention is directed to an apparatus providing the integration of the tape roll and the tape dispenser in a packaging system that almost totally eliminate the need for operator manipulation and reduce the occurrences of splicing of tape rolls. The tape is supplied in a package where it can be directly dispensed from. With this innovation, the operator does not have to lift the roll to install it on a tape dispenser, and so it can be made much larger than what is currently available. For example with this invention a tape roll can be made to contain 3 to 5 times the linear footage of the tape rolls currently available. By increasing the size of the tape roll, we naturally reduce the amount of splicing from one roll to the next that has to be done at the corrugating machine or press. Multiple tape rolls can be supplied in the same dispenser/package, to permit the use of multiple tapes in the corrugating machine or press and to have extra rolls available for splicing. A frame rack is also used, frame that is supplied with pulleys to provide tape paths out of the dispenser/package to the corrugating machine or press. The frame rack can provide tape paths for more than one dispenser/package and also provide the ability to splice one tape roll to the next for continuous feeding of the tape or tapes to the corrugating machine or press.

These and other novel features of the invention will be more fully described herein below.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be described with reference to the accompanying drawing wherein:

FIG. 1 is a view of the dispenser/packages with the frame rack over them providing the multiple tape paths.

FIG. 2 is a view of the dispenser/package.

FIG. 3 is a side view of the dispenser/package showing the shaft holder and the tensioning system.

DETAILED DESCRIPTION OF THE INVENTION

The present invention provides an improved apparatus for the dispensing of a ribbon at the corrugating machine or press. The dispenser/package 10 includes a frame rack 12

supporting guide rollers 14, 15, 16 to provide multiple tape paths 20, 21, 22 coming off the dispenser/package up towards the splicer unit 30 and the corrugating machine or press. The tape 40 is pulled out from the dispenser/package 10 and feed to the guide rollers 14, 15, 16 and the splicer unit 30. The tape roll 11 is inside the dispenser/package 10 and the tape 40 can be unwound directly from the tape roll 11 without removing it from the dispenser/package 10. To provide adequate tensioning of the tape 40 from start to end of the tape roll 11, a tensioning device in the form of a brake band 31 is used to increase the friction against the shaft holder 32 which is inserted inside the core 17 of the tape roll 11 and running on the shaft 33.

Different splicing systems can be used in the splicer unit 30 of the frame rack 12 to splice on tape roll 11 to the next. Different tape paths 20, 21, 22 are provided to permit the splicing of any tape roll 11 with any other tape roll in the dispenser/package 10 or another dispenser/package positioned next to it.